

In the Specification:

In the paragraph bridging pages 1 and 2 of the specification make the following amendment:

~~In conventional~~ Conventional wire bonding operation used to make structures according to the present invention as, schematically shown in FIG. 1, a free end of a wire is ball bonded to a contact pad on a surface. The wire is bent over and wedge bonded to another pad. The wire joining the two pads is curved. The shape of the curve is determined by the distance between the two pads which are joined. If the wire joining the two pads are severed, two wires having different shapes are formed. If it is desired that the wires bonded to the surface be used as an electronic device probe (as described herein) or to interconnect an array of contact pads on a first surface to another array of contact pads on a second surface which is facing the first surface, the conventional wire bonding process is not useful to fabricate such structures. To fabricate a probe for an electronic device using wires (probe wires) bonded to a surface, one end of the wire is bonded to contact pads on a support substrate for the probe wires. The other ends of the probe wires must be positioned so as to be able to contact the contact pads on device being tested. When an electronic device probe is moved into engagement with the contact pads of the device under test, the probe wires preferably flex so that the free end (probe tip) of the wires wipe across the surface of the contact pad being probed. The wiping action permits the probe tip to make good electrical contact to a contact pad. Since a probe is used many times, the probe tips of the probe wires make many thousands (preferably greater than 1000, more preferably greater than 10,000, most preferably greater than 100,000) engagements and disengagements with contact pads on devices under test resulting in many repeated bendings. The probe tip also must be flexible enough to achieve the desired degree of wiping, withstand many engagements without deforming and be sufficiently compressible to without deformation. Applicants invention provides a method and approach which can reliable form many probe wires to a desired predetermined shape to satisfy all these requirements.

In the paragraph bridging pages 3 and 4 of the specification make the following amendment:

~~The standard~~ Structures according to the present invention are made using a wire bonding operation is shown in FIG. 1 and starts by forming a ball on the end of a (preferably) gold wire 110 that is threaded through a hollow pointed ceramic tool called a capillary 115. The ball 112 is pressed against the first bonding surface 116 of substrate 118 while the substrate 118 is heated from below and ultrasonic energy is applied through the capillary 115 as shown in step 1 of FIG. 1. The metallurgy on the surface of the substrate is critical to the wire bonding process. After ball bonding the wire to the first substrate surface 116, the capillary 115 is raised while the substrate is moved (shown by arrow 120) to create a loop shape in the wire (FIG. 1--step 2). The capillary 115 is then lowered to press the side 124 of the wire against the second substrate 126 surface 128 to form the second bond or wedge bond 130 (FIG. 1--step 3). The capillary is raised slightly indicated by arrow 132 and a mechanical clamp is actuated to hold the wire in place while the capillary is raised again to break the wire at the end of the wedge bond 134 (FIG. 1--step 4). The ball is formed on the end of the gold bond wire by placing an electrode below the tip 136 of the wire and using a high voltage electrical discharge to melt the end of the wire (FIG. 1--step 5).